

WHAT IS CLAIMED IS:

1. A method of modification for the surface of glass substrates, comprising the following steps:
 - 5 forming a film by coating liquid organic-based solution on the surface of glass substrates; and,
 applying heat treatment on the substrates coated with the organic-based solution to cross-link and solidify the liquid organic materials.
- 10 2. The method according to claim 1, wherein said liquid organic-based solution is an organic-based spin-on-glass.
3. The method according to claim 2, wherein said organic-based spin-on-glass is mainly composed of siloxane or silsesquioxane.
4. The method according to claim 1, wherein the step of heat treatment is to
15 put the glass substrates coated with polymer in a high temperature furnace with an appropriate temperature for a period of time.
5. The method according to claim 4, wherein the temperature is at 425°C. However, precise temperature control is not required.
6. The method according to claim 1, wherein said step of heat treatment is
20 conducted in the air.
7. The method according to claim 1, wherein said step of heat treatment is conducted in the inert gas environment.
8. The method according to claim 7, wherein the inert gas comprises nitrogen, argon or neon.

9. The method according to claim 2, wherein said organic-based spin-on-glass has two functional groups of side-link R_1 and R_2 after cross-linking and solidification.
10. The method according to claim 9, wherein the R_1 and R_2 independently
5 represent the functional group selected from H, CH_3 , CH_3CH_2 , $CH_3CH_2CH_2$, C_6H_5 , $CF_3CH_2CH_2$, or other derivative organic functional groups.
11. The method according to claim 1, wherein the material of said glass substrate comprises quartz, boron glass, sodium glass, or other glass material. Other materials including silicon, silicon nitride, metal, ceramics
10 could be used as substrates.
12. A method of modification for the surface of glass substrates, comprising the following steps:
filling a liquid organic-based solution in glass microchannels;
removing the superfluous organic-based liquid; and,
15 applying heat treatment for the glass microchannels coated with organic polymer to cross-link the liquid materials.
13. The method according to claim 12, wherein said liquid organic-based solution is an organic-based spin-on-glass.
14. The method according to claim 12, wherein said organic-based
20 spin-on-glass is mainly composed of siloxane or silsesquioxane.
15. The method according to claim 12, wherein the step of heat treatment is to put the glass substrate coated with organic-based liquid in a high temperature furnace with an appropriate temperature for a period of time.

16. The method according to claim 15, wherein the temperature is at 425°C.

However, precise temperature control is not required.

17. The method according to claim 12, wherein said step of heat treatment is conducted in the air.

5 18. The method according to claim 12, wherein said step of heat treatment is conducted in the inert gas environment.

19. The method according to claim 18, wherein the inert gas comprises nitrogen, argon, neon.

10 20. The method according to claim 13, wherein said organic-based spin-on-glass has two functional groups of side-link R_1 and R_2 after cross-linking and solidification.

15 21. The method according to claim 20, wherein the R_1 and R_2 independently represent the functional groups selected from H, CH_3 , CH_3CH_2 , $CH_3CH_2CH_2$, C_6H_5 , $CF_3CH_2CH_2$, or other derivative organic functional groups.

22. The method according to claim 12, wherein the material of said glass microchannels comprises quartz, boron glass, sodium glass, or other glass material. Other materials including silicon, silicon nitride, metal, ceramics could be used as substrates.

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